

What is claimed is:

- 1.A chitin oligomer composition and/or a chitosan oligomer composition characterized by containing 0.001 to 1000 ppm of fluorine atom.
- 5 2. A chitin oligomer composition and/or a chitosan oligomer composition characterized by containing 0.001 to 1000 ppm of calcium atom.
- 10 3. The chitin oligomer composition and/or the chitosan oligomer composition according to claim 1, wherein the content of the oligomer from a trimer to a decamer is 60% or more.
- 15 4. The chitin oligomer composition and/or the chitosan oligomer composition according to any of claims 1 and 2, wherein the content of the oligomer from a tetramer to a decamer is 40% or more.
5. The chitin oligomer composition and/or the chitosan oligomer composition according to any one of claims 1 to 4, wherein the amount of the composition dissolved in 100 g of water at 20°C is 2 to 20 g.
- 20 6. The chitin oligomer composition according to any one of claims 1 to 5, wherein the concentration of endotoxin is 100 EU/ml or less.
7. The chitin oligomer composition according to any one of claims 1 to 6, wherein the chitin oligomer and/or the chitosan oligomer is a chitin oligomer

composition.

8. A process for preparing a chitin oligomer composition and/or a chitosan oligomer composition, the process comprising the step of adding hydrofluoric acid in 5 a concentration of 20 to 95 wt% to a chitin-based material and/or a chitosan-based material.

9. The process according to claim 8, wherein the concentration of hydrofluoric acid is 20 to 75 wt%.

10. The process according to claim 8, wherein 10 the concentration of hydrofluoric acid is 75 to 95 wt%.

11. A process for preparing a chitin oligomer composition and/or a chitosan oligomer composition, the process comprising the step of adding at least one of (A) hydrofluoric acid and (B) hydrohalogenated acid other than 15 hydrofluoric acid, the process being characterized in that (C) the concentration of hydrofluoric acid is 1 to 75 wt% based on the total amount of hydrohalogenated acid other than hydrofluoric acid and hydrofluoric acid; and that (D) the concentration of hydrohalogenated acid other than 20 hydrofluoric acid is 1 to 35 wt% based on the total amount of hydrohalogenated acid other than hydrofluoric acid and hydrofluoric acid.

12. The process according to any one of claims 8 to 11, wherein the liquid temperature in adding 25 hydrofluoric acid or hydrohalogenated acid and

hydrofluoric acid to the chitin-based material and/or the chitosan-based material is adjusted to -2 to 150°C.

13. The process according to any one of claims 8 to 12, wherein basic calcium salt is added, at a 5 suitable time, to a solution containing the chitin-based material and/or the chitosan-based material, hydrofluoric acid or hydrohalogenated acid other than hydrofluoric acid and hydrofluoric acid.

14. The process according to any one of claims 8 10 to 13 which includes a step of adding a hydrophilic organic solvent, at a suitable time, in an amount of 1 to 400 wt parts per 100 wt parts of hydrofluoric acid to a solution containing the chitin-based material and/or the chitosan-based material, hydrofluoric acid or 15 hydrohalogenated acid other than hydrofluoric acid and hydrofluoric acid to remove undissolved components from the solution and a step of removing the fluorine component from the solution subjected to the foregoing step.

15. The process according to any one of claims 8 20 to 14 which includes a step of making basic the solution containing the chitin-based material and/or the chitosan-based material, hydrofluoric acid or hydrohalogenated acid other than hydrofluoric acid and hydrofluoric acid at a suitable time to remove undissolved components from the 25 solution after which the solution subjected to the

foregoing step is made neutral or acidic.

16. The process according to any one of claims 8 to 15, wherein in a step after removing the fluorine component from the solution containing the chitin-based material and/or the chitosan-based material, hydrofluoric acid or hydrohalogenated acid other than hydrofluoric acid and hydrofluoric acid, the solution containing the chitin oligomer and/or the chitosan oligomer is brought into contact with at least one species selected from activated carbon, alumina, silica gel, alkyl-containing silica gel, amino-containing silica gel, hydroxyl-containing silica gel, and cyano-containing silica gel.

17. The process according to any one of claims 8 to 16 which includes a step of adding a hydrophilic organic solvent in an amount of 1 to 400 wt parts per 100 wt parts of hydrofluoric acid to the solution containing the chitin-based material and/or the chitosan-based material, hydrofluoric acid or hydrohalogenated acid other than hydrofluoric acid and hydrofluoric acid to remove undissolved components from the solution and wherein after removing the fluorine component from the hydrophilic organic solvent-containing solution subjected to the foregoing step, the hydrophilic organic solvent-containing solution is brought into contact with at least one species selected from activated carbon, alumina, silica gel,

alkyl-containing silica gel, amino-containing silica gel, hydroxyl-containing silica gel, and cyano-containing silica gel.

18. The process according to any one of claims 8
5 to 17, wherein 0.0001 to 1 wt% of a surfactant is added to
the solution containing the chitin-based material and/or
the chitosan-based material, hydrofluoric acid or
hydrohalogenated acid other than hydrofluoric acid and
hydrofluoric acid at an initial stage of contact between
10 the chitin-based material and/or the chitosan-based
material and hydrofluoric acid or hydrohalogenated acid
other than hydrofluoric acid and hydrofluoric acid.

19. A process for preparing a chitin oligomer
composition and/or a chitosan oligomer composition, the
15 process being characterized by adding hydrohalogenated
acid (other than hydrofluoric acid) to a chitin oligomer
and/or a chitosan oligomer which is one of the chitin-
based material and/or the chitosan-based material.

20. The process according to claim 19, wherein
the chitin oligomer and/or the chitosan oligomer contains
at least 70 wt% of oligomer with a polymerization degree
of 2 to 40.

21. The process according to any one of claims
19 and 20, wherein the concentration of hydrohalogenated
25 acid (other than hydrofluoric acid) is 1 to 70 wt%.

22. The process according to any one of claims
19 and 21, wherein the liquid temperature in adding
hydrofluoric acid or hydrohalogenated acid (other than
hydrofluoric acid) to the chitin-based material and/or the
5 chitosan-based material is adjusted to 25 to 150°C.

23. The process according to any one of claims
19 and 22, wherein a basic calcium salt is added to the
solution containing the chitin-based material and/or the
chitosan-based material, and hydrohalogenated acid other
10 than hydrofluoric acid at a suitable time.

24. The process according to any one of claims
19 to 23, which includes a step of adding a hydrophilic
organic solvent, at a suitable time, in an amount of 1 to
400 wt parts per 100 wt parts of hydrofluoric acid to the
15 solution containing the chitin-based material and/or the
chitosan-based material and hydrohalogenated acid (other
than hydrofluoric acid) and a step of removing the
fluorine component from the solution subjected to the
fregoint step.

20 25. The process according to any one of claims
19 to 24 which includes a step of making basic the
solution containing the chitin-based material and/or the
chitosan-based material, and hydrohalogenated acid other
than hydrofluoric acid at a suitable time to remove
25 undissolved components from the solution after which the

solution subjected to the foregoing step is made neutral or acidic.

26. The process according to any one of claims 19 to 25, wherein in a step after removing the fluorine component from the solution containing the chitin-based material and/or the chitosan-based material and hydrohalogenated acid, the solution containing the chitin oligomer and/or the chitosan oligomer is brought into contact with at least one species selected from activated carbon, alumina, silica gel, alkyl-containing silica gel, amino-containing silica gel, hydroxyl-containing silica gel, and cyano-containing silica gel.

27. The process according to any one of claims 19 to 26 which includes a step of adding a hydrophilic organic solvent in an amount of 1 to 400 wt parts per 100 wt parts of hydrofluoric acid to the solution containing the chitin-based material and/or the chitosan-based material and hydrohalogenated acid to remove undissolved components from the solution and wherein after removing the fluorine component from the solution containing the hydrophilic organic solvent subjected to the foregoing step, the hydrophilic organic solvent-containing solution is brought into contact with at least one species selected from activated carbon, alumina, silica gel, alkyl-containing silica gel, amino-containing silica gel,

hydroxyl-containing silica gel, and cyano-containing silica gel.

28. The process according to any one of claims 19 to 27, wherein 0.0001 to 1 wt% of a surfactant is added 5 to the solution containing the chitin-based material and/or the chitosan-based material and hydrohalogenated acid other than hydrofluoric acid at an initial stage of contact between the chitin-based material and/or chitosan-based material and hydrofluoric acid.

10 29. A feed for marine animals mainly composed of the chitin oligomer composition and/or the chitosan oligomer composition as defined in any one of claims 1 to 6.